

LESSONS FROM THE GEORGIA

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Rain dampened fireworks displays and spirits in Gulf Coast resort communities on the July 4th weekend of 1994. As tropical storm Alberto stalled over Georgia, a rained-out holiday was transformed into a life-threatening natural disaster. Floodwaters inundated 55 counties, severing basic services and destroying crops, residences, and businesses (1). Thirty-one people died as a result of the worst natural disaster in Georgia's 207-year history.

SYNOPSIS

IN JULY 1994, tropical storm Alberto brought heavy rains to parts of Alabama, Florida, and Georgia. In South Georgia, rivers rose 44 feet above flood stage, muddy water covered 10,000 square miles, and 31 lives were lost. In implementing the Health and Medical Services portion of the FEMA Federal Response Plan, the Public Health Service learned lessons from this experience that can be applied to planning for other natural disasters. Continuous reassessment to assure the best utilization of resources in rapidly changing conditions, cross-training in the content of emergency plans at all levels, and on-going face-to-face liaison among response managers will improve response efforts. Populations with special medical needs must become part of any response design. The effects that any response activity may have on the community as a whole should be carefully considered before action is taken.

The Response

In early July 1994, responding to the South Georgia floods, the Federal Emergency Management Agency (FEMA) opened its Atlanta Regional Operations Center and activated the Federal Response Plan (FRP) (2). Under the plan, the Public Health Service (PHS) serves as the lead agency for Emergency Support Function (ESF) #8, Health and Medical Services (see box). Within PHS, the Director of the Office of Emergency Preparedness is responsible for overall management of health and medical response and recovery efforts for man-made or natural disasters, and the Regional Health Administrator (RHA) is responsible for initiating and coordinating the immediate response of the Department of Health and Human Services to deal with disasters occurring within a geographic region.

As flood waters rose, PHS Region IV staff based in Atlanta maintained continuous communication with state and local health

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and human services personnel through the ESF #8 structure while monitoring the crisis and providing information on Federal health and medical support that could be requested by the state.

The effects of the flooding became apparent as the area's needs began to overwhelm the capabilities of local, county, district, and state health and human service emergency workers. More than 14,000 displaced residents needed shelter. A major sewage treatment plant overflowed, contaminating thousands of private wells. More than 400 caskets floated to the surface as floodwaters inundated two large cemeteries. Health care facilities lost power and potable water. Flooded roads and bridges blocked health care providers from reaching community health care facilities and emergency service sites.

As the waters began to recede, President Clinton visited the stricken area and pledged federal support. At the same time State officials, including the staff of the Georgia Emergency Management Agency, were preparing requests for Federal assistance.

Representatives of the ESF #8 partnership (box) responded to these requests by utilizing resources from a number of departments and agencies. PHS nurses, pharmacists, and other health professionals served at temporary shelters, clinics, and hospitals. The Centers for Disease Control and Prevention (CDC) activated the health surveillance system used in the aftermath of Hurricane Andrew in 1992 and the Midwestern floods in 1993. Public Health Advisors from the CDC assessed injury and disease data. The Department of Veterans Affairs sent 50 nurses to provide medical care in shelters and two respiratory technologists to support a local hospital. PHS Sanitarians from the Indian Health Service and other agencies assisted local and state authorities with water sampling and treatment pro-

grams, vector control, and evaluations of incidents involving hazardous materials.

The Office of Emergency Preparedness in Rockville, Maryland, activated the National Disaster Medical System (NDMS), a cooperative effort to provide emergency medical treatment, evacuation, definitive medical care, and

related health services to victims of disasters. This office is responsible for administering the NDMS in partnership with the Department of Defense, the Department of Veteran Affairs, and FEMA. A disaster Mortuary Team, an NDMS program activity, was sent to Albany, Georgia, to assist the state in identifying and reinterring 409 recovered human remains.



The Lessons Learned

1. The rapidly changing effects of flooding require continuous reassessment of health and medical needs and accessible resources.

Earthquakes and hurricanes wreak havoc in a single catastrophic event, but flooding is an insidious disaster characterized by changing and often unpredictable crisis sites. As waters gradually rise over a period of several days, health and medical needs

change dramatically and unpredictably. Providers and facilities actively providing emergency response services one day may be inaccessible the next. Floodwaters limit the availability of health care personnel as rising water blocks them from reporting to work, even at sites relatively unaffected by the disaster. An initial assessment identifying a particular facility as operational may be invalid just hours later due to continued flooding, power failures, staffing inadequacies, and inability to replace consumable supplies. The number and demographic characteristics of affected persons also change continually as new areas are inundated. Contaminated wells and vector control present additional challenges.

Reassessment activities such as the door-to-door surveys of residents in the flooded areas conducted by CDC public health advisors, and the constant monitoring of patient visits to hospitals and other providers, proved to be a barometer of the changing needs of the population and aided response planners.

The Georgia floods of 1994 demonstrated the value of regular periodic assessment by local, county, state and federal officials of the changing effects of the disaster on the health, medical and human service infrastructure.

2. Emergency plans prepared at local, state, and federal levels must be clearly understood by response personnel at all levels. Many State disaster response plans are developed to mesh with the Federal Response Plan. If Federal officials assume that this is true in all cases, confusion may result during implementation. In this disaster, it became evident that more thorough training and on-site orientation was required for health and emergency services officials at all levels of government.

Often State authorities focus training on high risk areas of the state. However, natural disasters do not always strike high risk areas. Training and response exercises for local emergency personnel must be pursued more aggressively. Although these activities are promoted by FEMA, Federal agencies must work continuously with their State and local counterparts to encourage active involvement. But Federal agencies must go further. As the first step, the PHS Regional Offices are now developing a comprehensive State and Local Profiles Program, to be continually updated, which should result in a simple guidebook of contacts built on the basic action steps required in any disaster response.

The need to train Federal officials in the content of State and local plans became apparent early in this disaster when large-scale disinterment of human remains occurred. Previously conducted joint Federal and State tabletop exercises had not emphasized mortuary services; ESF #8 officials assumed that Georgia's Division of Public Health would bear primary responsibility for unearthed human remains since mortuary services are part of the Health and Medical Services function in the Federal plan. However, in the Georgia Emergency Operations Plan, the Georgia Bureau of Investigation (GBI), rather than the public health agency, is assigned those responsibilities (3).

Even though the GBI is responsible for mortuary services under Georgia's plan, they had not anticipated the complicated process required to manage a large number of

recovered human remains. PHS personnel had gained experience through the National Disaster Medical System in coping with over 750 unearthed coffins during the Midwestern floods of the previous year. Initially, differences between the Georgia and NDMS plans resulted in a misunderstanding about federal resources available to support GBI activities. As the crisis unfolded, a series of intense discussions resulted in a partnership between GBI and NDMS personnel on the scene. A cooperatively developed action program led to efficient identification and reinterment of the remains.

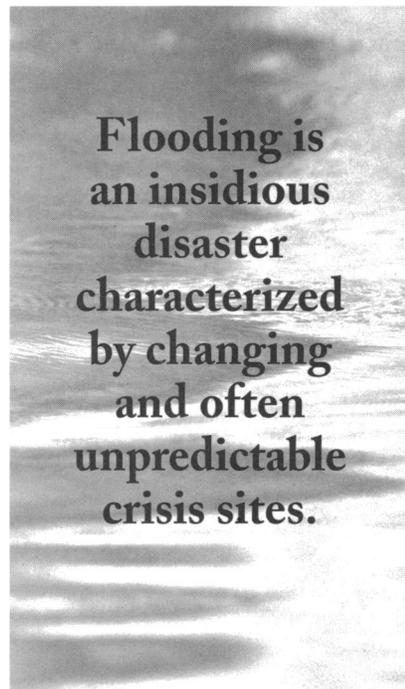
3. Continuous face-to-face liaison among Federal, State and local response managers, supplemented by comprehensive information systems, is essential. Collaboration and coordination among emergency response managers is essential in any disaster. The successful response to the Georgia disaster demonstrated that when Federal, State, and local response staff met regularly, problems were resolved effectively.

It is crucial that local emergency coordinators talk with their Federal and State counterparts. Health and human service personnel at district, county, and community levels have in-depth knowledge of the affected area and people in need and are familiar with local resources. Yet key people at the community level, particularly those in communities not perceived as "high risk," have often been left out of the joint disaster exercises that build understanding and rapport between State and Federal responders.

This and other recent disasters reveal a consistent pattern of information needs:

- timely (and repeated) assessments of the scope of the disaster, particularly measurements of the changing health, medical and mental health needs that lead to the documentation of needs for immediate Federal support;
- tracking of Federal resources provided, both in terms of measuring the effectiveness of the federal response and as a means of maintaining fiscal controls; and
- strengthening the ability of existing health surveillance systems, not readily available in the earliest stages of this disaster, to detect emergent health and medical problems in the immediate aftermath of the disaster and the long-term recovery period.

The plan developed to consolidate, downsize, and close the shelters in late July illustrates the importance of ongoing contact and communication of accurate information. Daily



meetings of Federal, State, and local counterparts (i.e., representatives from ESF#8, the American Red Cross, Department of Veterans Affairs, and district and State health departments) were held to review and share information on emergency shelter users, their medical requirements, and other factors. By meeting regularly and sharing technical information, this group was able to plan and carry out an orderly time-phased withdrawal of Federal medical personnel.

Effective liaison requires two-way communication between the disaster area and remote locations where decision-makers process and interpret information that often can be contradictory and confusing. A broad range of information resources is needed, including:

- software to track assignments and expenditures;

using home health care or requiring special medical support, and the frail elderly). In response to any disaster, assuring continuity of services for affected populations becomes an extremely high priority. Treatment of chronic illnesses must be continued. Prescription drugs must be available. Medical personnel and equipment must be adequate to ensure ongoing clinical care. In addition, housing and medical support for all emergency workers, from those delivering supplies to those providing patient care, must be available locally.

It is important that the response and recovery phases of disaster assistance be clearly delineated. Early in the response phase, facility repair and reconstruction do not have high priority unless essential to the continuity of services. If health and medical facilities are rendered inopera-



- e-mail linkages among PHS headquarters offices, regional offices, cooperating Federal organizations, State health departments, and local responders;
- telecommunications resources extending voice and data links to field personnel (including portable satellite terminals, wireless messaging service, and radio-based communications systems);
- technical personnel capable of developing and maintaining the infrastructure's hardware and software; and
- computer specialists to operate these systems.

4. Early planning and priority setting are required to assure continuity of care for special medical needs populations (hospital and nursing home patients, persons

ble, services can be offered in temporary facilities such as tents and mobile vans while response teams determine what repairs and reconstruction must be performed during the recovery (4).

As in most communities devastated by natural disaster, many people with special medical needs were displaced by the Georgia flood. Continuity of care for nursing home patients, home health patients, and other frail elders required more than the first aid nursing care traditionally available in American Red Cross shelters. To meet this need ESF #8 managers arranged for 24-hour care in specially designated shelters. In planning for future disasters, States should develop guidelines defining the medical conditions that require people to be cared for in a "special medical

needs shelter." Using these guidelines, ESF #8 managers and emergency planners can design staffing models, itemize resource needs, and identify potential resource suppliers for more effective response in future emergencies.

**Emergency Support Function #8
Health and Medical Services**

PRIMARY AGENCY:

Department of Health and Human Services
U.S. Public Health Service¹

LEAD PHS AGENCIES:

National Disaster Medical System
Assessment of health/medical needs
Medical care personnel
Health/medical equipment and supplies
Patient evacuation
In-hospital care
Victim identification/mortuary services

Centers for Disease Control

Health surveillance
Worker health safety
Radiological hazards
Chemical hazards
Biological hazards
Public health information
Vector control

Indian Health Service

Potable water/waste water and solid waste disposal

Substance Abuse and Mental Health Services Administration

Mental health assessment/needs/training

SUPPORT AGENCIES:

Department of Agriculture
Department of Defense¹
Department of Justice
Department of Transportation
Department of Veterans Affairs¹
Agency for International Development
American Red Cross
Environmental Protection Agency
Federal Emergency Management Agency¹
General Services Administration
National Communications System
U.S. Postal Service

¹NDMS Partner

5. Responses to requests for Federal support should be consistent with approved public health practices. In the wake of the July flooding, affected communities urgently sought Federal support for mosquito control activities. At the request of the State of Georgia, PHS provided vector control experts to evaluate the mosquito population. Although mosquito populations had increased, no significant increases in mosquito borne disease were detected. A decision was made to resist widespread spraying, a decision increasingly difficult to enforce as nuisance mosquito problems increased. Eventually, limited spraying for nuisance mosquitos was carried out by the state in several communities. Georgia public health officials, with technical assistance provided by CDC personnel, continued monitoring for mosquito-borne diseases through mid-1995.

The PHS decisions to resist widespread spraying reflected concern for larger environmental issues such as the effect of spraying on the large number of honeybee businesses and fish farms in the flooded area. This experience demonstrates the need for careful evaluation of the effect of specific disaster response activities on the community as a whole.

Summary

Several major disasters have struck American communities during the past few years. Devastating hurricanes and earthquakes wreak havoc in single catastrophic events. Flooding, like that occurring in the Midwest in 1993, and in south Georgia in the summer of 1994, is different and requires different levels of preparedness and response.

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References

1. The Atlanta Newspapers: The Atlanta Journal and Constitution, reports and articles, Atlanta, Georgia, July, August, and September 1994.
2. The Federal Emergency Management Agency: The Federal Response Plan; for Public Law 93-288 as amended, Washington, D.C., April 1992.
3. The State of Georgia: Georgia Emergency Operations Plan, July 1993.
4. United States Public Health Service: Recovery from Disasters of Great Magnitude, Region IV, Atlanta, Georgia, 1994.

Fifteen distinct groups responded to the Georgia flood crisis. The management and coordination of such large group efforts is critical if response is to be effective and efficient.